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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,308	09/09/2004	Phillip Kent Niccum	020711KEL103	5307

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EXAMINER	
BOYER, RANDY	
ART UNIT	**PAPER NUMBER**
1764	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/711,308	NICCUM ET AL.	
	Examiner	Art Unit	
	Randy Boyer	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☒ Claim(s) *6-9 and 17-20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9 September 2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 6 is objected to for lack of antecedent basis.

2. With respect to claim 6, the claim recites the limitation "the vapor." There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

3. Claims 7-9 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

4. With respect to claim 7 (from which claims 8 and 9 depend), the claim defines a "method of operating the particle stripping unit of claim 2," but merely provides the process steps for operating a particle stripping unit. It does not further limit the apparatus defined in claim 2.

5. Claims 17-20 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

6. With respect to claim 17 (from which claims 18-20 depend), the claim defines a "method of operating the FCC unit of claim 11," but merely provides the process steps for operating a FCC unit. It does not further limit the apparatus defined in claim 11.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3, 5, 6, 10-13, 21, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Parker (US 4692311).

9. With respect to claim 1, Parker discloses a particle stripping unit (Fig. 2) for separating particles in suspension with a carrier fluid with a self-stripping disengagement feature, comprising: (a) a stripping vessel (17) having a primary cyclone (24); (b) an inlet (31) to tangentially feed a particulate-fluid suspension to the primary cyclone; (c) a cylindrical surface within the primary cyclone to separate a major fraction of the particulates from the suspension and form a central fluid vortex of reduced particulate content; (d) a particulate discharge outlet (39) into the stripping vessel from the primary cyclone; (e) a plurality of openings (39) in a wall of the primary cyclone from a dilute phase in the stripping vessel; and (f) a fluid discharge line (20) from the stripping vessel in communication with the vortex of the primary cyclone and sealed against direct fluid entry from the dilute phase.

10. With respect to claims 2 and 3, Parker discloses wherein the particle stripping unit (17) further comprises a stripping zone (27) between the vortex (in the cyclone zone (24)) and the particulate discharge outlet, and wherein the openings (39) in the wall for entry of the stripping fluid are located in the stripping zone (27).

11. With respect to claim 5, Parker discloses wherein the particle stripping unit (17) further comprises a stabilizer (26) between the vortex (in the cyclone zone (24)) and the stripping zone (27) forming an annular passage between the stabilizer (26) and an interior surface of the cyclone for downward passage of particulates and upward passage of fluid.

12. With respect to claim 6, Parker discloses wherein the particle stripping unit inlet (31) is connected to a riser reactor to receive a suspension of solid catalyst particles in the vapor (see Parker, column 1, lines 14-19; and column 2, lines 44-49).

13. With respect to claim 10, Parker discloses a fluid catalytic cracking (FCC) unit, comprising: (a) a FCC stripper vessel (17); (b) a self-stripping primary cyclone (in the cyclone zone (24)) disposed within the stripper vessel to separate catalyst from FCC riser effluent and form a catalyst-lean stream of hydrocarbon vapors; (c) a catalyst stripping bed (35) in a lower end of the FCC stripper (17); (d) an inlet (31) to the primary cyclone to supply the FCC riser effluent to the primary cyclone; (e) a stripping fluid supply (see Fig. 2, NH_3, air) to the stripping bed; and (f) a stripped catalyst outlet (23) from the stripping bed through the lower catalyst outlet from the stripping bed through the lower end of the FCC stripper.

14. With respect to claim 11, Parker discloses wherein the primary cyclone further comprises: (a) a cyclone vessel (24); (b) a cylindrical surface centrally mounted in the primary cyclone to separate solids from the suspension and form a vapor vortex of reduced solids content; (c) a sealed vapor outlet (20) from the primary cyclone in communication with the vortex; (d) a solids discharge outlet (39) from a lower end of the primary cyclone; and (e) a plurality of openings (39) in a wall of the lower end of the primary cyclone for the entry of stripping fluid.

15. With respect to claims 12 and 13, Parker discloses wherein the FCC unit further comprises a stripping zone (27) between the vortex (in the cyclone zone (24)) and the solids discharge outlet (23), and wherein the openings (39) in the wall for entry of the stripping fluid are located in the stripping zone.

16. With respect to claim 21, Parker discloses a method for stripping vapor from a suspension of particulates in a carrier gas, comprising: (a) separating particulates from the suspension in an initial separation zone of a cyclone to form a particulate-rich stream with entrained vapor and a vapor stream lean in suspended matter; (b) introducing a stripping fluid through openings in an exterior wall of the cyclone into a stripping zone below the initial separation zone; (c) passing the particulate-rich stream from the separation zone through the stripping zone, making countercurrent contact with the stripping fluid to remove at least a portion of the entrained vapor, and into a dipleg in communication with the stripping zone; and recovering stripped particulates from the dipleg (see Parker, Fig. 2; column 2, lines 35-68; and column 3, lines 1-10).

17. With respect to claim 22, Parker discloses wherein the stripping zone is in fluid communication with the initial separation zone via an annular passage defined by an outside diameter of a vortex stabilizer (26) and an interior wall of the cyclone between the separation and stripping zones.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not

commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

20. Claims 7-9, 17-20, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker (US 4692311).

21. With respect to claim 7, Parker discloses a method of operating a particle stripping unit comprising: (a) supplying the suspension to the inlet; (b) passing particulates downwardly through a cross-sectional area of a lower portion of the stripping vessel comprising a vertical cylinder; (c) introducing stripping fluid into the stripping zone openings; and (d) recovering stripped particles from the particulate discharge outlet (see Parker, Fig. 2; column 2, lines 35-68; and column 3, lines 1-10).

Parker does not disclose wherein the downward flow of particulates occurs at an average solids flux rate of from 24 to 440 kg per square meter of cross-sectional area per second, or wherein stripping fluid is introduced at an average fluid velocity of from 9 to 90 meters per second.

However, Parker discloses wherein the stripping fluid velocity will depend on catalyst circulation rate and cyclone (i.e. catalyst bed) cross sectional area (see Parker, column 6, lines 64-66). In addition, Parker provides the results from a pilot scale study in which he relates catalyst flow rate to stripping fluid rate (see Parker, Table 1) and provides comparison to commercial-scale operations (see Parker, column 6, lines 66-68; and column 7, lines 1-6). The court has instructed that the mere scaling up of a prior art process capable of being scaled up does not establish patentability in a claim to

an old process so scaled. *See In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to scale the apparatus and process of Parker in order to provide an average solids flux rate of from 24 to 440 kg per square meter of cross-sectional area per second, and stripping fluid at an average fluid velocity of from 9 to 90 meters per second.

22. With respect to claims 8 and 9, Parker discloses wherein the cyclone includes a stabilizer (26) between the vortex (in the cyclone zone (24)) and the stripping zone (27) that forms an annular passage between the stabilizer and the interior surface of the cyclone for downward passage of particulates and upward passage of fluid; and wherein the method includes passing fluid up through the annular passage at a superficial velocity range of 0.1 to 5 meters per second (see Parker, column 6, lines 66-68).

23. With respect to claim 17, Parker discloses a method of operating a FCC unit, comprising: (a) supplying a vapor-solid suspension from a FCC riser to the inlet of the FCC unit; (b) passing solids down through a cross-sectional area of a lower portion of the cyclone vessel comprising a vertical cylinder; (c) passing fluid upward through the cylinder at a superficial velocity of from 0.06 to 3 meters per second; and (d) introducing stripping fluid into the stripping zone wall openings (see Parker, Fig. 2; column 2, lines 35-68; column 3, lines 1-10; and column 6, lines 64-66).

Parker does not disclose wherein the downward flow of particulates occurs at an

average solids flux rate of from 24 to 440 kg per square meter of cross-sectional area per second, or wherein stripping fluid is introduced at an average fluid velocity of from 9 to 90 meters per second.

However, Parker discloses wherein the stripping fluid velocity will depend on catalyst circulation rate and cyclone (i.e. catalyst bed) cross sectional area (see Parker, column 6, lines 64-66). In addition, Parker provides the results from a pilot scale study in which he relates catalyst flow rate to stripping fluid rate (see Parker, Table 1) and provides comparison to commercial-scale operations (see Parker, column 6, lines 66-68; and column 7, lines 1-6). The court has instructed that the mere scaling up of a prior art process capable of being scaled up does not establish patentability in a claim to an old process so scaled. *See In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to scale the apparatus and process of Parker in order to provide an average solids flux rate of from 24 to 440 kg per square meter of cross-sectional area per second, and stripping fluid at an average fluid velocity of from 9 to 90 meters per second.

24. With respect to claims 18 and 19, Parker discloses wherein the primary cyclone includes a stabilizer (26) between the vortex (in the cyclone zone (24)) and the stripping zone (27) that forms an annular passage between the stabilizer and the interior surface of the cyclone for downward passage of particulates and upward passage of fluid; and wherein the method includes passing fluid up through the annular passage at a

superficial velocity range of 0.1 to 5 meters per second (see Parker, column 6, lines 66-68).

25. With respect to claim 20, Parker discloses wherein the stripping fluid supply is selected from steam, air, or ammonia (see Parker, column 2, lines 11-12; and Fig. 2).

26. With respect to claims 23 and 24, Parker discloses a cyclone having a stripping zone (27) in communication with the upper portion (cyclone zone (24)), wherein the cyclone bottom includes a dipleg (23) to receive the solids rich stream from the stripping zone and a plurality of openings (see Parker, Fig. 2) in the wall of the cyclone bottom to introduce stripping fluid into the stripping zone; and wherein the new cyclone bottom comprises a vortex stabilizer (26) and an interior wall of the cyclone bottom that defines an annular passage (39) there between.

Parker does not disclose wherein such cyclone apparatus is made by retrofitting an existing cyclone.

However, Parker specifically notes the advantages provided by his cyclone design. He explains that prior attempts to introduce stripping gas directly into a cyclone separator resulted in a loss of separation efficiency, and thus was impractical (see Parker, column 2, lines 22-24). This problem was overcome by Parker's design through the addition of the vortex stabilizing means (26). Thus, the vortex stabilizer (26) allows for the *unitary* design of Parker's cyclone separator/stripper, providing (1) quick stripping time to remove bulk product vapor and interstitial vapor, and (2) longer stripping time required to desorb hydrocarbon products from the catalyst (see Parker, column 2, lines 14-35). Examiner finds that following the steps of Applicant's "method of retrofitting an

existing cyclone to a self-stripping cyclone" as defined by claims 23 and 24 would result in the unitary design of Parker's cyclone separator/stripper. Moreover, it is generally known in the art to retrofit existing cyclones, e.g. in order to make use of existing process equipment and to save on new equipment costs (see e.g., Dewitz (US 5869008) at column 9, lines 19-46).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to retrofit an existing cyclone to a self-stripping cyclone of the type disclosed by Parker by installing a new cyclone bottom to an upper portion of the existing cyclone in order to provide a stripping zone in communication with the upper portion, wherein the cyclone bottom includes a dipleg to receive the solids rich stream from the stripping zone and a plurality of openings in the wall of the cyclone bottom to introduce stripping fluid into the stripping zone; and wherein the new cyclone bottom comprises a vortex stabilizer and an interior wall of the cyclone bottom that defines an annular passage there between.

27. Claims 4, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parker (US 4692311) in view of Fandel (US 5843377).

28. With respect to claim 4, Parker discloses a particle stripping unit (Fig. 2) for separating particles in suspension with a carrier fluid with a self-stripping disengagement feature, comprising: (a) a stripping vessel (17) having a primary cyclone (24); (b) an inlet (31) to tangentially feed a particulate-fluid suspension to the primary cyclone; (c) a cylindrical surface within the primary cyclone to separate a major fraction of the particulates from the suspension and form a central fluid vortex of

reduced particulate content; (d) a particulate discharge outlet (39) into the stripping vessel from the primary cyclone; (e) a plurality of openings (39) in a wall of the primary cyclone from a dilute phase in the stripping vessel; and (f) a fluid discharge line (20) from the stripping vessel in communication with the vortex of the primary cyclone and sealed against direct fluid entry from the dilute phase.

Parker does not disclose wherein the particle stripping unit further comprises a thermal expansion joint in the fluid discharge line.

However, Fandel discloses an FCC separation system that uses a gas collection conduit that incorporates an expansion element for accommodating differential growth between different subunits of the FCC separation system (see Fandel, Abstract). Fandel explains that the expansion elements (e.g. thermal expansion joints) are provided to relieve stresses associated with differential expansions occurring as a result of changes in process temperature (e.g. during process start-up and shut-down). Thus, such expansion elements are provided as a means to eliminate rigid connections between subunits of the FCC system, and allow for positional changes of the process equipment in relation to changes in process temperature that would otherwise cause damage to the equipment as a result of thermal stress or fatigue failure (see Fandel, column 2, lines 11-19; column 3, lines 2-4 and 62-67; and column 4, lines 1-13).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to incorporate the thermal expansion joints of Fandel into the particle stripping unit of Parker in order to prevent equipment failure brought about by thermal expansion of the unit connections.

29. With respect to claim 14, Parker discloses a fluid catalytic cracking (FCC) unit, comprising: (a) a FCC stripper vessel (17); (b) a self-stripping primary cyclone (in the cyclone zone (24)) disposed within the stripper vessel to separate catalyst from FCC riser effluent and form a catalyst-lean stream of hydrocarbon vapors; (c) a catalyst stripping bed (35) in a lower end of the FCC stripper (17); (d) an inlet (31) to the primary cyclone to supply the FCC riser effluent to the primary cyclone; (e) a stripping fluid supply (see Fig. 2, NH_3, air) to the stripping bed; and (f) a stripped catalyst outlet (23) from the stripping bed through the lower catalyst outlet from the stripping bed through the lower end of the FCC stripper; wherein the primary cyclone further comprises: (a) a cyclone vessel (24); (b) a cylindrical surface centrally mounted in the primary cyclone to separate solids from the suspension and form a vapor vortex of reduced solids content; (c) a sealed vapor outlet (20) from the primary cyclone in communication with the vortex; (d) a solids discharge outlet (39) from a lower end of the primary cyclone; and (e) a plurality of openings (39) in a wall of the lower end of the primary cyclone for the entry of stripping fluid; and wherein the FCC unit further comprises a stripping zone (27) between the vortex (in the cyclone zone (24)) and the solids discharge outlet (23), and wherein the openings (39) in the wall for entry of the stripping fluid are located in the stripping zone.

Parker does not disclose wherein the particle stripping unit further comprises a thermal expansion joint in the fluid discharge line.

However, Fandel discloses a FCC separation system that uses a gas collection conduit that incorporates an expansion element for accommodating differential growth

between different subunits of the FCC separation system (see Fandel, Abstract). Fandel explains that the expansion elements (e.g. thermal expansion joints) are provided to relieve stresses associated with differential expansions occurring as a result of changes in process temperature (e.g. during process start-up and shut-down). Thus, such expansion elements are provided as a means to eliminate rigid connections between subunits of the FCC system, and allow for positional changes of the process equipment in relation to changes in process temperature that would otherwise cause damage to the equipment as a result of thermal stress or fatigue failure (see Fandel, column 2, lines 11-19; column 3, lines 2-4 and 62-67; and column 4, lines 1-13).

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to incorporate the thermal expansion joints of Fandel into the FCC unit of Parker in order to prevent equipment failure brought about by thermal expansion of the unit connections.

30. With respect to claim 15, Parker discloses wherein the FCC unit (17) further comprises a stabilizer (26) between the vortex (in the cyclone zone (24)) and the stripping zone (27) forming an annular passage between the stabilizer and an interior surface of the primary cyclone for downward passage of solids and upward passage of fluid.

31. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Parker (US 4692311) in view of Niccum (US 4514285).

32. With respect to claim 16, Parker discloses a fluid catalytic cracking (FCC) unit, comprising: (a) a FCC stripper vessel (17); (b) a self-stripping primary cyclone (in the

cyclone zone (24)) disposed within the stripper vessel to separate catalyst from FCC riser effluent and form a catalyst-lean stream of hydrocarbon vapors; (c) a catalyst stripping bed (35) in a lower end of the FCC stripper (17); (d) an inlet (31) to the primary cyclone to supply the FCC riser effluent to the primary cyclone; (e) a stripping fluid supply (see Fig. 2, NH_3, air) to the stripping bed; and (f) a stripped catalyst outlet (23) from the stripping bed through the lower catalyst outlet from the stripping bed through the lower end of the FCC stripper; and wherein the primary cyclone further comprises: (a) a cyclone vessel (24); (b) a cylindrical surface centrally mounted in the primary cyclone to separate solids from the suspension and form a vapor vortex of reduced solids content; (c) a sealed vapor outlet (20) from the primary cyclone in communication with the vortex; (d) a solids discharge outlet (39) from a lower end of the primary cyclone; and (e) a plurality of openings (39) in a wall of the lower end of the primary cyclone for the entry of stripping fluid.

Parker does not disclose further comprises a catalyst regenerator comprising: (a) a stripped catalyst inlet to the regenerator connected to the solids discharge outlet of the FCC stripper; (b) a distributor to introduce an oxygen-containing gas into the regenerator to regenerate the stripped catalyst; and (c) an outlet from the regenerator to transfer regenerated catalyst to an inlet of the FCC riser.

However, Niccum discloses a fluid catalytic conversion process and apparatus in which hot freshly regenerated catalyst is contacted with hydrocarbon feedstock in a gravity flow catalytic reactor (see Niccum, Abstract). The catalyst regenerator of Niccum comprises (a) a stripped catalyst inlet (27,39) to the regenerator (29) connected

to the solids discharge outlet (27) of the FCC stripper; (b) a distributor (40) to introduce an oxygen-containing gas into the regenerator to regenerate the stripped catalyst; and (c) an outlet (41) from the regenerator to transfer regenerated catalyst to an inlet (8) of the FCC riser (9). Thus, the apparatus of Niccum provides for the regeneration, recycle, and reuse of spent catalyst.

Therefore, it would have been obvious to the person having ordinary skill in the art at the time the invention was made to incorporate the catalyst regenerator of Niccum into the FCC unit of Parker, in order to provide for the regeneration, recycle, and reuse of the spent catalyst.

Conclusion

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy Boyer whose telephone number is (571) 272-7113. The examiner can normally be reached Monday through Friday from 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola, can be reached at (571) 272-1444. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RPB

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